

PATENT CLAIMS

1. Optical biopsy instrument (100), comprising
 - (a) an essentially cylindrical cannula (22) having a proximal end (24) and a distal end (26) wherein the cannula (22) has at least one lateral opening (28) and
 - (b) an endoscope (10) that is axially movable inside the cannula (22).
2. Optical biopsy instrument (100) according to Claim 1, **characterized in that** the at least one lateral opening (28) in the cannula (22) has a cutting area (30) in at least a portion of the area on its area facing the distal end (26) and/or on its area facing the proximal end (24).
3. Optical biopsy instrument (100) according to Claim 2, **characterized in that** the cutting area (30) is implemented by a polished section of the circumference of the at least one lateral opening (28) and/or by teeth on the circumference.
4. Optical biopsy instrument (100) according to any one of the preceding claims, **characterized in that** the at least one lateral opening (28) has an essentially round, oval, elliptical or rectangular shape.
5. Optical biopsy instrument (100) according to any one of the preceding claims, **characterized in that** the cannula (22) is sealed on its distal end (26) with a wall, in particular with a transparent wall.
6. Optical biopsy instrument (100) according to any one of the preceding claims, **characterized in that** an outer diameter of the endoscope (10) corresponds essentially to an inside diameter of the cannula (22) or is slightly smaller than the latter.
7. Optical biopsy instrument (100) according to any one of the preceding claims, **characterized in that** the outside diameter of the cannula amounts to max. 1.2 mm.
8. Optical biopsy instrument (100) according to any one of the preceding claims, **characterized in that** the endoscope is a rigid endoscope or a flexible glass fiber endoscope.
9. Use of an optical biopsy instrument (100) according to any one of Claims 1 through 8 for endoscopy and/or biopsy of duct systems with small diameter, especially in milk ducts in mammary glands.
10. Method for taking tissue samples in duct systems whereby

- (a) an optical biopsy instrument (100) comprising
 - an essentially cylindrical cannula (22) having a proximal end (24) and a distal end (26) and having at least one lateral opening (28) and
 - an endoscope (10) that is axially movable in the cannula (22),
is inserted into the duct with endoscopic monitoring up to a biopsy location,
 - (b) the tissue sample (34) is brought through the open opening (28) which remains open into the interior of the cannula (22) and
 - (c) the tissue sample (34) is severed from the remaining tissue by advancing the endoscope (10) through the lateral opening (28) and/or retracting the cannula (22) until the lateral opening (28) is closed.
11. Method for removing tissue samples in duct systems whereby
- (a) an optical biopsy instrument (100) comprising
 - an essentially cylindrical cannula (22) having a proximal end (24) and a distal end (26) and having at least one lateral opening (28) and
 - an endoscope (10) that is axially movable in the cannula (22),
is inserted into the duct with endoscopic monitoring until the lateral opening (28) comes to lie over a biopsy location and
 - (b) the tissue sample (34) is brought through the open opening (28) which remains open into the interior of the cannula (22) and
 - (c) the tissue sample (34) is severed from the remaining tissue by advancing or retracting the cannula (22) together with the stationary endoscope (10) with the lateral opening (28) exposed while exerting a slight manual pressure against the tissue sample (34).